

RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/10/006,091

DATE: 12/17/2001  
 TIME: 10:43:45

Input Set : A:\MSB-7255.1.txt  
 Output Set: N:\CRF3\12172001\J006091.raw

ENTERED

TECH CENTER 1600/2900

RECEIVED  
 JAN 24 2002

3 <110> APPLICANT: Cho, Myung-Sam  
 4 Chan, Sham-Yuen  
 5 Kelsey, William  
 6 Yee, Helena  
 8 <120> TITLE OF INVENTION: Expression System for Factor VIII  
 10 <130> FILE REFERENCE: MSB-7255.1  
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/006,091  
 C--> 13 <141> CURRENT FILING DATE: 2001-12-06  
 15 <160> NUMBER OF SEQ ID NOS: 2  
 17 <170> SOFTWARE: PatentIn Ver. 2.0  
 19 <210> SEQ ID NO: 1  
 20 <211> LENGTH: 1438  
 21 <212> TYPE: PRT  
 22 <213> ORGANISM: Artificial Sequence  
 24 <220> FEATURE:  
 25 <223> OTHER INFORMATION: Description of Artificial Sequence: Derived from  
 26 human factor VIII sequence  
 28 <400> SEQUENCE: 1  
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 30 1 5 10 15  
 32 Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro  
 33 20 25 30  
 35 Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys  
 36 35 40 45  
 38 Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro  
 39 50 55 60  
 41 Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val  
 42 65 70 75 80  
 44 Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val  
 45 85 90 95  
 47 Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala  
 48 100 105 110  
 50 Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val  
 51 115 120 125  
 53 Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn  
 54 130 135 140  
 56 Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser  
 57 145 150 155 160  
 59 His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu  
 60 165 170 175  
 62 Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu  
 63 180 185 190  
 65 His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp  
 66 195 200 205  
 68 His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser  
 69 210 215 220  
 71 Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg

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```

72 225                230                235                240
74 Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
75                245                250                255
77 Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
78                260                265                270
80 Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
81                275                280                285
83 Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
84                290                295                300
86 Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
87 305                310                315                320
89 Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
90                325                330                335
92 Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
93                340                345                350
95 Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
96                355                360                365
98 Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
99                370                375                380
101 Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
102 385                390                395                400
104 Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
105                405                410                415
107 Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
108                420                425                430
110 Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
111                435                440                445
113 Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
114                450                455                460
116 Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
117 465                470                475                480
119 Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
120                485                490                495
122 His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
123                500                505                510
125 Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
126                515                520                525
128 Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
129                530                535                540
131 Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
132 545                550                555                560
134 Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
135                565                570                575
137 Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
138                580                585                590
140 Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
141                595                600                605
143 Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
144                610                615                620

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```

146 Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
147 625 630 635 640
149 Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
150 645 650 655
152 Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
153 660 665 670
155 Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
156 675 680 685
159 Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
160 690 695 700
162 Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
163 705 710 715 720
165 Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
166 725 730 735
168 Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
169 740 745 750
171 Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
172 755 760 765
174 Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
175 770 775 780
177 Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
178 785 790 795 800
180 Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
181 805 810 815
183 Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
184 820 825 830
186 Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
187 835 840 845
189 Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
190 850 855 860
192 Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
193 865 870 875 880
195 Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
196 885 890 895
198 Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
199 900 905 910
201 Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
202 915 920 925
204 Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
205 930 935 940
207 Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
208 945 950 955 960
210 Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
211 965 970 975
213 Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
214 980 985 990
216 Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
217 995 1000 1005
219 Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe

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220      1010                      1015                      1020
222 His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met
223 1025                      1030                      1035                      1040
225 Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn
226                      1045                      1050                      1055
228 Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg
229                      1060                      1065                      1070
231 Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val
232                      1075                      1080                      1085
234 Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg Val
235                      1090                      1095                      1100
237 Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr Leu Phe
238 1105                      1110                      1115                      1120
240 Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met Ala Ser Gly
241                      1125                      1130                      1135
243 His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln Tyr Gly Gln Trp
244                      1140                      1145                      1150
246 Ala Pro Lys Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp
247                      1155                      1160                      1165
249 Ser Thr Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro
250                      1170                      1175                      1180
252 Met Ile Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser
253 1185                      1190                      1195                      1200
255 Ser Leu Tyr Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys
256                      1205                      1210                      1215
258 Lys Trp Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe
259                      1220                      1225                      1230
261 Phe Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
262                      1235                      1240                      1245
264 Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser Ile
265                      1250                      1255                      1260
267 Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys
268 1265                      1270                      1275                      1280
270 Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile
271                      1285                      1290                      1295
273 Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser
274                      1300                      1305                      1310
276 Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln
277                      1315                      1320                      1325
279 Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met
280                      1330                      1335                      1340
282 Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser
283 1345                      1350                      1355                      1360
285 Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Gln Asp Gly His Gln
286                      1365                      1370                      1375
288 Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn
289                      1380                      1385                      1390
291 Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu
292                      1395                      1400                      1405

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294 Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala
295      1410                      1415                      1420
297 Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
298 1425                      1430                      1435
301 <210> SEQ ID NO: 2
302 <211> LENGTH: 402
303 <212> TYPE: DNA
304 <213> ORGANISM: Artificial Sequence
306 <220> FEATURE:
307 <223> OTHER INFORMATION: Description of Artificial Sequence:Derived from
308      Epstein-Barr virus sequence
310 <400> SEQUENCE: 2
311 ggcaatggag cgtgacgaag ggccccaggg ctgaccccg caaacgtgac ccgggggctcc 60
312 ggggtgacct aggcaagcgt ggccaagggg cccgtgggtg acacaggcaa ccctgacaaa 120
313 ggccccccag gaaagacccc cggggggcat cggggggggt ttggcgggtc atgggggggg 180
314 cggtgatcgc cgcgcattcc tggaaaaagt ggagggggcg tggccttccc cccgcggccc 240
315 cctagccccc ccgcagagag cggcgcaacg gcgggcgagc ggcggggggg cggggtccgc 300
316 gggctccggg ggctgcgggc ggtggatgac ggctggcgtt ccgggggatc ggggggggtc 360
317 ggggggcgct gcgcgggcgc agccatgcgt gaccgtgatg ag                      402

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VERIFICATION SUMMARY

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Input Set : A:\MSB-7255.1.txt

Output Set: N:\CRF3\12172001\J006091.raw

L:12 M:270 C: Current Application Number differs, Replaced Application Number

L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date